in uniting totally enclose the chorda. Acaudate Batrachia, according to my own observations.

c. From two lateral cartilages which enclose the chorda, and also develope the arches from themselves. Higher Vertebrata.

In terminating this Note, I take the liberty of adding that the only information heretofore existing on the subject to which it refers, is that contained in the very valuable memoirs by J. Müller* and Williamson†. The part which each of these has contributed to the elucidation of this subject, will be stated in a paper which will appear in the next Number of the Würzburg Transactions, to which I refer those who take a more special interest in this matter, and desire to know on what data the results here given are founded.

VI. "Remarks on the late Storms of October 25–26 and November 1, 1859." By Rear-Admiral FitzRoy, F.R.S. Received December 22, 1859.

As many of our Society must doubtless be interested in the nature and character of that storm in which the 'Royal Charter' went to pieces on Anglesea Island, and as abundant information has been obtained from Lighthouses, Observatories, and numerous private observers, I would take this earliest opportunity of stating that the combined results of observations prove the storm of October 25th and 26th to have been a complete horizontal cyclone.

Travelling bodily northward, the area of its sweep being scarcely 300 miles in diameter, its influence affected only the breadth of our own Islands (exclusive of the west of Ireland) and the coast of France.

While the central portion was advancing northward, not uniformly but at an *average* rate of about twenty miles an hour, the actual velocity of the wind—circling (as against watch-hands) around a small central "lull"—was from forty to nearly eighty miles an hour.

At places north-westward of its centre, the wind appeared to "back" or "retrograde," shifting from east through north-east, and north to north-west; while at places eastward of its central passage, the apparent change, or veering, was from east, through south-east, south, south-west, and west.

* Vergleichende Anatomie der Myxinoiden. † Phil. Trans. 1850.

Our Channel squadron, not far from the Eddystone, experienced a rapid, indeed almost a sudden shift of the wind from south-east to north-west, being at the time in, or near, the central lull; while, so near as at Guernsey, the wind veered round by south, regularly, without any lull. This sudden shift off the Eddystone occurred at about three (or soon after), and at nearly half-past five it took place near Reigate, westward of which the central lull passed.

From this south-eastern part of England, the central portion of the storm moved northward and eastward. Places on the east and north coasts of Scotland had strong easterly or northerly gales a day nearly later than the middle of England. When the 'Royal Charter' was wrecked, Aberdeen and Banffshire were not disturbed by wind; but when it blew hardest, from east to north, on that exposed coast, the storm had abated or almost ceased in the Channel and on the south coast of Ireland.

Further details would be ill-timed now, but they will be given in a paper to the Royal Society, as soon as additional observations from the Continent, and from ships at sea, have been collected and duly combined with other records.

The storm of the 31st, and 1st of November, was similar in character; but its central part passed just to the west of Ireland's south-west coast, and thence north-eastward.

Of both these gales the barometer and thermometer, besides other things, gave ample warning; and telegraphic notice might have been given in sufficient time from the southern ports to those of the eastern and northern coasts of our Islands.

As it is the north-west half of the cyclone (from north-east to south-west, *true*) which is influenced chiefly by the cold, dry, heavy, and positively electrified polar atmospheric current, and the south-west half that shows effects of equatorial streams of air—warm, moist, light, and negatively electrified;—places over which one part of a cyclone passes are affected differently from others which are traversed by another part of the very same meteor, or atmospheric *eddy*, the eddy itself being caused by the meeting of very extensive bodies of air, moving in nearly, but not exactly opposite directions, one of which gradually overpowers, or combines with the other, after the rotation.

On the *polar* half of the cyclone, continually supplied from *that*

side, the visible effect is a drying up and clearing of the air, with a rising barometer and falling thermometer; while on the equatorial side, overpowering quantities of warm moist air—rushing from comparatively inexhaustible tropical supplies—push towards the north-east as long as their impetus lasts (however originated), and are successively chilled, dried, and intermingled with the always resisting, though *at first* recoiling, polar current. After such struggles these two currents unite in a *varying* intermediate state and *direction*, one or other prevailing gradually.

Very plain and practical conclusions are deducible from these considerations:—

One, and the most important, is that in a gale which seems likely to be near the central part of a storm, that should be (of course) avoided by a ship which has sea room: a seaman, facing the wind, knows that the centre is on his *right* hand in the northern hemisphere, on his *left* in the southern; he therefore is informed *how to steer*.

Another valuable result is that telegraphic communication can give notice of a storm's approach, to places then some hundred miles distant, and *not otherwise forewarned*.

The Society adjourned to January 12, 1860.

January 12, 1860.

Sir BENJAMIN C. BRODIE, Bart., President, in the Chair.

The Right Hon. Edward Lord Stanley was admitted into the Society.

The following communications were read:—

I. "Notes of Researches on the Poly-Ammonias."—No. VII. On the Diatomic Ammonias. By A. W. HOFMANN, LL.D., F.R.S. Received December 14, 1859.

In continuing my inquiries into the nature of the organic bases, I was led in the commencement of the year 1858 to repeat some experiments on the action of dibromide of ethylene upon ammonia,